how to convert curies to megabecquerels

Science Time

Last updated: 02/28/2005

Nuclear Reactors

Moderator slows down neutrons produced in chain reactions so they can b more easily absorbed by other nuclie so fission continues.

Control rods absorb neutrons, controlling the rate of reaction.

Breeder reactors are ones in which some of the neutrons produced in the fission of U-235 produce plutonium. This plutonium can be used in an atomic bomb.

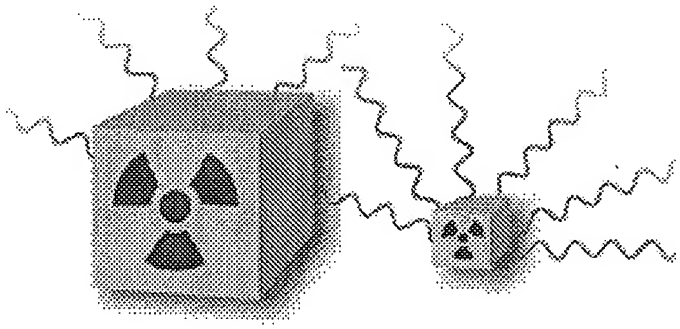
Exposure:

The size or weight of a container or shipment does not indicate how much radioactivity is in it.

The amount of radioactivity in a quantity of material can be determined by noting how many cu of the material are present. This information should be found on labels and/or shipping papers

More curies = a greater amount of radioactivity

A large amount of material can have a very small amount of radioactivity; a very small amount material can have a lot of radioactivity.



For example, uranium-238 has 0.00015 curies of radioactivity per pound (0.15 millicuries), whi cobalt-60 has nearly 518,000 curies per pound.

In the International System of units (SI), the becquerel (Bq) is the unit of radioactivity. One Bq disintegration per second (dps). One curie is 37 billion Bq. Since the Bq represents such a sm amount, you are likely to see a prefix used with Bq, as shown below:

- 1 MBq (27 microcuries)
- 1 GBq (27 millicuries)
- 37 GBq (1 curie)
- 1 TBq (27 curies)

SI Units and Prefixes

The International System of Units has been given official status and recommended for univers

use by the General Conference on Weights and Measures.

Radiation Measurements

	Radioactivity	Absorbed Dose	Dose Equivalent	Exposure
Common Units	curie (Ci)	rad	rem	roentgen (R)
SI Units	becquerel (Bq)	gray (Gy)	sievert (Sv)	coulomb/kilogr (C/kg)

prefixes and their meanings that are often used in conjunction with SI units:

Multiple	Prefix	Symbol
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n

Conversion Equivalence

1 curie = 3.7×10^{10} disintegrations per second

1 becquerel = 1 disintegration per second

1 millicurie (mCi)	=	37 megabecquerels (MBq)
1 rad	=	0.01 gray (Gy)
1 rem	=	0.01 sievert (Sv)
1 roentgen (R)	=	0.000258 coulomb/kilogram (C/kg)
1 megabecquerel (MBq)	=	0.027 millicuries (mCi)
1 gray (Gy)	=	100 rad
1 sievert (Sv)	=	100 rem
1 coulomb/kilogram (C/kg)	=	3,880 roentgens

Conversion Factors

To convert from	To	Multiply by
Curies (Ci)	becquerels (Bq)	3.7×10^{10}
millicuries (mCi)	megabecquerels (MBq)	37
microcuries (µCi)	megabecquerels (MBq)	0.037
millirads (mrad)	milligrays (mGy)	0.01
millirems (mrem)	microsieverts (µSv)	10
milliroentgens (mR)	microcoulombs/kilogram (µC/kg)	0.258
becquerels (Bq)	curies (Ci)	2.7×10^{-11}
megabecquerels (MBq)	millicuries (mCi)	0.027
megabecquerels (MBq)	microcuries (µCi)	27
milligrays (mGy)	millirads (mrad)	100
microsieverts (µSv)	millrems (mrem)	0.1
microcoulombs/kilogram (µC/kg)	milliroentgens (mR)	3.88